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(54) **Method of developing silver halide photographic materials.**

(57) A method for processing a silver halide lightsensitive material is disclose comprising a support having thereon at least one silver halide emulsion layer with an automatic developing machine which comprises developing an imagewise exposed silver halide light-sensitive material, wherein an amount of organic substances remaining in at least one of the emulsion layer or other hydrophilic colloid layers comprising a surface protective layer after said processing with said automatic developing machine, is not more than about 90 wt% of the weight of said organic substances prior to said processing.

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A method using gelatin-insoluble polymers together with gelatin for the purpose of inhibiting such surface gloss is disclosed in Japanese Patent Application (OPI) No. 20731/82 (the term "OPI" as used herein means a "published unexamined Japanese patent application"). It is also known that gloss can be inhibited by using matting agents. These methods, however, fail to sufficiently inhibit gloss of the smooth surface resulting from the use of tabular grains, and furthermore, a considerable increase in haze is caused after the processing.

The present invention is intended to satisfactorily inhibit the formation and amount of surface gloss after processing without an increase in haze.

SUMMARY OF THE INVENTION

One object of the present invention is to provide a method for developing photographic materials whereby high covering power can be obtained while maintaining a sufficiently high drying speed, high sensitivity can be achieved in a rapid processing, residual color is decreased in the case of color sensitization, and pressure characteristics are not deteriorated.

Another object of the present invention is to provide a method for developing X-ray photographic materials which exhibit the characteristics described above.

The above and other objects of the present invention can be attained by a method for processing a silver halide light-sensitive material comprising a support having thereon at least one silver halide emulsion layer with an automatic developing machine which comprises developing an imagewise exposed silver halide light-sensitive material, wherein an amount of organic substances remaining in at least one of the emulsion layer or other hydrophilic colloid layers comprising a surface protective layer after said processing with said automatic developing machine is not more than about 90 wt% of the weight of said organic substances prior to said processing.

DETAILED DESCRIPTION OF THE INVENTION

In the method for development-processing a silver halide light-sensitive material comprising a support having thereon at least one silver halide emulsion layer with an automatic developing machine which comprises developing an imagewise exposed silver halide light-sensitive material, an amount of organic substances capable of being washed away (e.g., gelatin, a matting agent, a plasticizer, a polymeric substance, and other organic substances) remaining in the material after carrying out the process, i.e.; development-fixing-rinsing(washing with. water)-dring using the automatic developing machine is not more than about 90 wt% of the weight of said organic substances prior to the processing.

Washing away of the organic substances occurs due to physical dissolution or disappearance thereof due to chemical reaction. In more detail, it is preferred that organic substances capable of being washed away or flowing out from the material during the development step be incorporated in an emulsion layer and/or another hydrophilic colloid layer.

The term "organic substances capable of being washed away" as used herein refers to the materials having this ability which are able to achieve the objects of the present invention, as exemplified below.

Where the organic substance capable of being washed away from the material is gelatin, it is preferred to use gelatin of the type that is free from crosslinking due to the hardener. Examples of this type of gelatin include acetylated gelatin and phthalated gelatin. Preferred are those having a low molecular weight. Suitable polymeric organic substances other than gelatin include polyacrylamide as described in U.S. Patent 3,271,158, and hydrophilic polymers such as polyvinyl alcohol and polyvinyl pyrrolidone. Dextran and sugars such as saccharose and pullulan are effective as well as organic substances capable of being washed away. Of these compounds, polyacrylamide and dextran are preferred. Particularly preferred is polyacrylamide. The average molecular weight of the above substances is preferably not more than about 50,000, more preferably not more than 20,000, and most preferably 5,000 to 15,000. An amount of the organic substance such as polyacrylamide, polyvinyl alcohol, polyvinyl pyrrolidone, dextran, saccharose, or pullulan contained in the emulsion layer and/or another hydrophilic colloid layer such as a surface protective layer is preferably 30 wt% or more and more preferably 40 wt% or more based on a total binder of said layer.

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In the emulsion layer of the silver halide photographic material of the present invention, known regularly-shaped silver halide grains (for example, spherical grains) having an aspect ratio of less than about 5 can be incorporated. These grains may be used as an upper layer or lower layer of the emulsion layer(s) containing tabular grains having an aspect ratio of not less than about 5, depending on the purpose. Therefore, although the type of silver halide grains are not critical, it is preferred to use tabular grains having an aspect ratio of not less than about 5. In addition, a mixed emulsion can be used, i.e., where about 50% or more of the total projected area of grains in the emulsion layer preferably has a tabular grain having an aspect ratio of not less than about 5. For the preferred tabular grains, the diameter of the corresponding circle is 0.5 μm or more and the thickness is not more than 0.3 μm. It is preferred that grains having an aspect ratio of not less than about 5 constitute at least about 20% by weight of the total amount of silver coated. Of course, the emulsion may be composed of regularly-shaped silver halide grains alone, if desired.

These emulsion layers can be prepared by the methods described in P. Glafkides, Chimie et Physique Photographique, Paul Montel (1967), G.F. Duffin, Photographic Emulsion Chemistry, The Focal Press (1966), V.L. Zelikman et al, Making and Coating Photographic Emulsion, The Focal Press (1964), etc.

Silver halide as used herein may be any of silver bromide, silver iodobromide, silver iodochlorobromide, silver chlorobromide, silver chloride and the like.

Cadmium salts, zinc salts, lead salts, thallium salts, iridium salts or complex salts thereof, rhodium salts or complex salts thereof, iron salts or complex salts there of and the like may be co-present in the course of formation or physical ripening of silver halide grains. If desired, chemical sensitization can be applied.

For achieving the above-noted chemical sensitization, a gold sensitization method using gold compounds as described in, for example, U.S. Patents 2,448,060, 3,320,069), a sensitization method using metals such as iridium, platinum, rhodium and palladium (as described in, for example, U.S. Patents 2,448,060, 2,566,245, 2,566,263), a sulfur sensitization method using sulfur-containing compounds (as described in, for example, U.S. Patent 2,222,264), a reduction sensitization method using tin salts, polyamines and the like (as described in, for example, U.S. Patents 2,487,850, 2,518,698, 2,521,925) and so on can be employed alone or in combination with each other.

The silver halide grains to be used in the present invention may, as discussed above, be tabular grains, which are described in detail below.

Tabular silver halide grains may be used, which can be prepared by the methods known in the art or combinations thereof.

Tabular silver halide emulsions can be easily prepared with reference to Cugnac & Chateau, "Evolution of the Morphology of Silver Bromide Crystals During Physical Ripening", Science et Industrie Photography, Vol. 33, No. 2, pp. 121-125 (1962), Duffin, Photographic Emulsion Chemistry, The Focal Press, New York, pp. 66-72 (1966), and A.P.H. Trivelli & W.F. Smith, Photographic Journal, Vol. 80, page 285 (1940), and Japanese Patent Application (OPI) Nos. 127921/83, 113927/83, 113928/83, 55426/84, 99433/84 and 201235/86.

Alternatively, they can be prepared by forming seed crystals containing therein at least about 40% by weight of tabular grains in a relatively low pBr value condition so that pBr is not more than about 1.3 and then growing the seed crystals by simultaneously adding silver salts and halogen solutions (i.e., halides) while maintaining the pBr value at a similar level.

In the course of grain growth, it is desirable that silver salts and halogen solutions (i.e., halides) b added so as to inhibit the formation of new crystal nuclei.

The size of tabular silver halide grains can be controlled by adjusting the temperature, choosing the type and amount of the solvent, or by controlling the speed of addition of silver salts and halides to be present in the course of the growth of grains. For chemical sensitization, any noble metal sensitization method such as a gold sensitization method, a sulfur sensitization method and so forth can be applied. In particular, the method described in Japanese Patent Application (OPI) No. 3134/86 is preferably applied.

The light-sensitive materials according to the present invention can contain various compounds for the purpose of preventing fog during preparation, preservation before use, or photographic processing of the light-sensitive materials, or for stabilizing photographic performances. Such compounds include azoles, e.g., benzothiazolium salts, nitroindazoles, nitrobenzimidazoles, chlorobenzimidazoles, bromobenzimidazoles, mercaptothiazoles, mercaptobenzothiazoles, mercaptobenzimidazoles, mercaptothiadiazoles, aminotriazoles, benzothiazoles, nitrobenzotriazoles, mercaptotetrazoles (particularly, 1-phenyl-5-mercaptotetrazoles, etc.; mercaptopyrimidines; mercaptotriazines; thioketo compounds, e.g., oxazolinethione, etc.; azaindenes, e.g., triazaindenes, tetraazaindenes (particularly 4-hydroxy-substituted (1,3,3a,7)tetraazaindenes), pentaazaindenes, etc.; benzenethiosulfonic acid, benzenesulfinic acid, benzenesulfonic acid amide, and various other

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glycol sorbitan esters, polyalkylene glycol alkylamines or alkylamides, polyethylene oxide adducts of silicone, etc.), glycidol derivatives (e.g., alkenylsuccinic acid polyglycerides, alkylphenol polyglycerides, etc.), fatty acid esters of polyhydric alcohols, alkyl esters of sugars, etc.; anionic surface active agents containing an acid group (e.g., carboxyl group, a sulfo group, a phospho group, a sulfate group, a phosphate group, etc.), such as alkylcarboxylates, alkylsulfonates, alkylbenzenesulfonates, alkylnaphthalenesulfonates, alkylsulfates, alkylphosphates, N-acyl-N-alkyltaurines, sulfosuccinates, sulfoalkylpolyoxyethylene alkyl phenyl ethers, polyoxyethylene alkylphosphates, etc.; amphoteric surface active agents, such as amino acids, aminoalkylsulfonic acids, aminoalkyl sulfates or phosphates, alkylbetaines, amine oxides, etc.; and cationic surface active agents, such as alkylamine salts, aliphatic or aromatic quaternary ammonium salts, heterocyclic quaternary ammonium salts, e.g., pyridinium, imidazolium, etc., aliphatic or heterocyclic phosphonium or sulfonium salts, and the like.

These surfactants are described, for example, in R. Oda et al., Surfactants and Their Application, Maki Shoten, Tokyo (1964), H. Horiguchi, New Surfactants, Sankyo Shuppan Co., Ltd., Tokyo (1975), McCutcheon's Detergents & Emulsifiers, McCutcheon Divisions, MC Publishing Co. (1985), and Japanese Patent Application (OPI) No. 76741/85, Japanese Patent Application Nos. 13398/86, 16056/86 and 32462/86.

Suitable antistatic agents include fluorine-containing surfactants or polymers described in Japanese Patent Application Nos. 249021/85 (corresponding to U.S. Patent application Serial No. 929,021 filed on November 10, 1986) and 32462/86, nonionic surfactants described in Japanese Patent Application (OPI) Nos. 76742/85, 80846/85, 80848/85, 80839/85, 76741/85, 208743/83, Japanese Patent Application Nos. 13398/86, 16056/86 and 32426/86, and electrically conductive polymers or latexes (nonionic, anionic, cationic and amphoteric) described in Japanese Patent Application (OPI) No. 204540/82 and Japanese Patent Application No. 32462/86.

Suitable inorganic antistatic agents include ammonium salt, halides, nitrates, perchlorates, sulfates, acetates, phosphates, thiocyanates and the like of alkali metals and alkaline earth metals, and electrically conductive tin oxide and zinc oxide, as well as composite oxides resulting from the doping of the above metal oxides with antimony and the like, as described in Japanese Patent Application (OPI) No. 118242/82. In addition, various electric charge transfer complexes, π-conjugated polymers or their doped products, organometallic compounds, intercalated compounds and so forth can be used as the antistatic agents. Examples are TCNQ/TTF, polyacetylene and polypyrrole. These compounds are described in Science and Industry , 59 (3), pages 103-111 (1985) and 59 (4), pages 146-152 (1985).

The photographic material of the present invention may include an interlayer, a filter layer, an antihalation layer and so on, if desired.

In the photographic material of the present invention, photographic emulsion layers and other layers ar coated on a flexible support such as plastic films commonly used in photographic materials. Useful examples of such flexible supports are films composed of semi-synthetic or synthetic polymers such as cellulose nitrate, cellulose acetate, cellulose acetate butyrate, polystyrene, polyvinyl chloride, polyethylene terephthalate and polycarbonate. The support may be colored with dyes or pigments, if desired.

With regard to the layer construction of the silver halide photographic material which can be used in the present invention, it is preferred to use a support with at least one silver halide emulsion layer on each of both sides of the support as described in Japanese Patent Application (OPI) Nos. 127921/83, 90841/84, 111934/83 and 201235/86.

The method for coating an emulsion layer, a surface protective layer and so forth on the support is not critical in the present invention. For example, the multi-layer simultaneous coating method described in U.S. Patents 2,761,418, 3,508,947, 2,761,791 and so on is preferably used.

The developer to be used in the present invention can contain known developing agents. Developing agents which can be used in the present invention include dihydroxybenzenes (e.g., hydroquinone), 3-pyrazolidones (e.g., 1-phenyl-3-pyrazolidone) and aminophenols (e.g., N-methyl-paminophenol). These compounds can be used alone or in com bination with each other. In general, the developer further contains known additives such as a preservative, an alkali agent, a pH buffer and an antifoggant and, if desired, may contain a dissolution aid, a color controller, a development accelerator (e.g., quaternary salts, hydrazine and benzyl alcohol), a surfactant, a defoaming agent, a hard water-softening agent, a hardener (e.g., glutaraldehyde), a tackifier and so forth.

The fixing solution can be selected from commonly used compositions. Fixing agents which can be incorporated therein include thiosulfuric acid salts, thiocyanic acid salts, and further, organic sulfur compounds which are known to be effective as the fixing agent can also be employed. The fixing solution may contain water-soluble aluminum salts as the hardening agent.

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$CH_2=CHSO_2CH_2CONH(0)_2\text{-}(CH_2)_2NHCOCH_2SO_2CH=CH_2$
[1,2-bis(vinylsulfonylacetamido)ethane]

The amount of the hardening agent added was chosen within the range of 2.0 to 7.0 wt% depending on the amount of gelatin coated, and the addition of the polymer increased the amount of the hardening ag_nt needed to obtain the identical drying speed.

The amount of silver coated was 2.5 g,/m² on one surface, and the silver was coated on both surfaces of the support.

Measurement of Amount of Substance Washed Away by Processing The amount of the organic substance washed away during the process of development-fixing-rinsing-drying relative to the amount of the coated organic substance prior to the processing (expressed in weight ratio) was measured by the method described below.

A sample was allowed to stand under conditions of temperature 25.°C and relative humidity 10% until the water content of the sample was in equilibrium with the atmosphere, and then the weight of the sample was measured. The sample was subjected to processing from development to drying by the use of an automatic developing machine (Fuji X-ray Processor Model FPM4000 manufactured by Fuji Photo Film Co., Ltd.). Again, the sample was allowed to stand under conditions of temperature 25°C and relative humidity 10%, and when the water content reached equilibrium, the weight of the sample was measured. By previously measuring the weight of the support, it was confirmed that there was no change of weight in the processing of the support only. The developed silver ratio was measured by subjecting the material to uniform exposure or no subjecting exposure at all. Based on the developed silver ratio and the specific gravity of silver halide, a decrease in the weight of silver halide grains themselves due to development and fixing was calculated. From these values, the weight of the organic substance washed away during the processing was determined. Although the emulsion contained inorganic salts, the amount of the inorganic salts was negligible in comparison with the amount of the organic substance washed away.

In the above situation, the amount of the organic substance washed away was determined by weight measurement. However, the amount could also be estimated by measurement of the film thickness before and after the processing, and the washed-away substances can be quantitatively determined by analyzing the processing solution, if desired.

Method of Measurement of Drying Speed

The automatic developing machine used was a Fuji X-ray Processor Model FPM4000 (produced by Fuji Photo Film Co., Ltd.).

The formulations of the developer and fixing solution were as follows:

Developer

1-Phenyl-3-pyrazolidone 1.5 g Hydroquinone 30 g
5-Nitroindazole 0.25 g Potassium bromide 3.0 g
Anhydrous sodium sulfite 50 g
Potassium hydroxide 30 g
Boric acid 10 g
Glutaraldehyde 5 g
Water to make 1 liter
(The pH was adjusted to 10.20.)

Fixing Solution

Ammonium thiosulfate 200.0 g
Sodium sulfite (anhydrous) 20.0 g
Boric acid 8.0 g
Disodium ethylenediaminetetraacetate 0.1 g
Aluminum sulfate 15.0 g

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high sensitivity and high density could be obtained. Further, scratching resistance and residual color were considerably improved. In the cas of Sample 1-9, even though dried in a time of about 1/2 of that of Comparative Sample 1-1, sensitivity was higherthan that for Comparative Sample 1-1, Dmax was high and scratching resistance and residual color were improved considerably.

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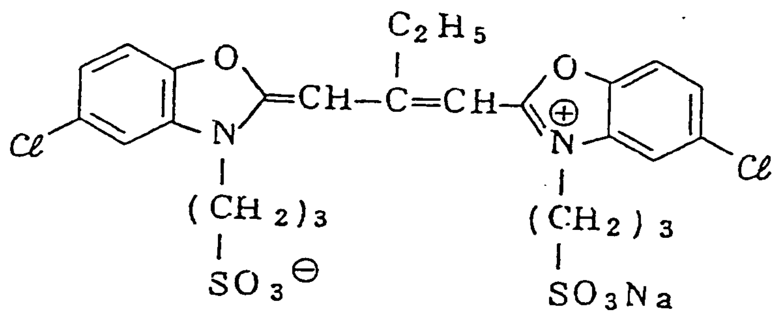
If the sensitivity and Dmax are attempted to be increased by conventional techniques such as in Sample 1-2, the drying speed is slowed down to the extent that is unsuitable for practical use, and scratching resistance is reduced by one level. Polyacrylamide is more effective than saccharose.

The remarkable effects of the present invention are apparent from the above-shown results.

EXAMPLE 2

Thick tabular twin grains of silver iodobromide (silver iodide: 3.5 mol%) were formed in the presence of ammonia and potassium thiocyanate using the double jet method. The average grain diameter, calculated as the average diameters of spheres having the same value as individual grains, was 0.78 µm. These grains were subjected to chemical sensitization with chloroauric acid salt and sodium thiosulfate. Thereafter, 400 mg of sensitizing dye (2-I) having the structure shown below, per mol of silver halide grains were added to effect ortho sensitization.

Sensitizing Dye (2-I)



The weight ratio of silver to gelatin in the above emulsion was 1.05.

In the same manner as in Example 1, a coating aid and a tackifier were added, and together with the same type of surface protective layer, a sample having the structure shown in Table 2 was formed. The drying speed was adjusted by controlling the amount of the hardener added. Evaluations were performed in the same manner as in Example 1. The amount of silver coated on each surface was 2.0 g/m^2. As polymers to be coated on both surfaces and to be washed away, polyacrylamides having average molecular weights of 40,000, 18,000 and 7,000, respectively, were used,provided that the used gelatin is a gelatin which is not washed away.

It can be clearly seen from Table 2 that polyacrylamide having a low molecular weight is preferred. In accordance with the present invention, the balance among sensitivity, Dmax, scratching resistance and residual color is greatly improved under the conditions where the drying speed is equal or higher to that applied to the comparative samples.

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EXAMPLE 3

Emulsion grains were prepared and coated in the same manner as in Example I, except that as the polymer (i.e., organic substance) to be washed away, dextrans having average molecular weights of 40,000, 15,000, and 7,000, respectively were used in place of polyacrylamide, provided that the used gelatin is a gelatin which is not washed away.

The results are shown in Table 3. By comparison with Sample Nos 2-1 to 2-3, the effects of the present invention are clearly exhibited.

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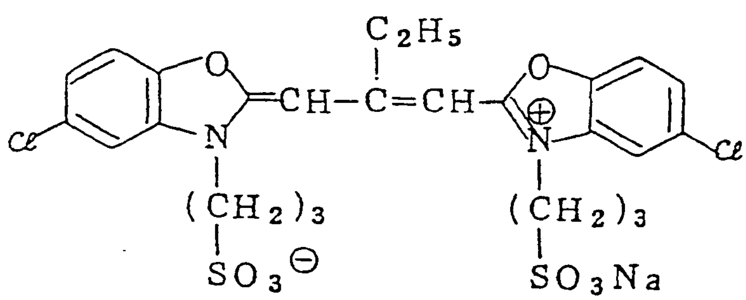
EXAMPLE 4

30 g of gelatin and 6 g of potassium bromide were added to 1,000 ml of water in a container. An aqueous silver nitrate solution (4 g as silver nitrate) and an aqueous potassium bromide solution containing 0.15 g of potassium iodide were added thereto over a period of 1 minute by the double jet method while stirring. In addition, an aqueous silver nitrate solution (145 g of silver nitrate) and an aqueous potassium bromide solution containing 4.2 g of potassium bromide were added thereto by the double jet method. The addition was performed so that the flow rate at the end of addition was 5 times that at the start of addition. At the end of addition, soluble salts were removed at 35°C by precipitating. The reaction mixture was raised to 40°C and 75 g of gelatin were added, and then the pH of the reaction mixture was adjusted to 6.7. With regard to the emulsion thus obtained, it contained tabular grains having a projected area diameter of 0.98 µm and an average thickness of 0.138 um, and the silver iodide content was 3 mol%. This emulsion was then subjected to chemical sensitization by a combination of gold sensitization and sulfur sensitization. After the end of sensitization, 4-hydroxy-6-methyl-1,3,3a,7tetraazaindene as an antifoggant was added, and 500 mg per mol of silver halide grains of sensitizing dye (4-I) having the structure shown below was added to effect ortho sensiti zation.

Sensitizing Dye (4-I)



In addition, dodecylbenzene sulfonate as a coating aid and potassium p-vinylbenzenesulfonate as a tackifier were added to prepare a basic formulation for the emulsion layer. The weight ratio of silver to gelatin was 1.05. Separately, a 7 wt% aqueous gelatin solution containing, in addition to gelatin, fine grains of polymethyl methacrylate, saponin, polystyrenesulfonic acid soda and so on, was prepared as a basic formulation for the surface protective layer. Gelatin which is not washed away and water-soluble polymer substances were added to the emulsion layer and the surface protective layer in the proportions shown in Table 4, which were coated on a polyethylene terephthalate support at the same time and dried to form photographic materials 41 to 4-11. At this time, the amount of the hardener added was adjusted to prepare samples having different drying speeds.

As the hardening agent, Compound Example V-28 described in Japanese Patent Application (OPI) No. 117534/86, i.e., a vinyl sulfon-based hardening agent, was used. The amount of the hardening agent added was chosen within the range of 2.0 to 7.0 wt% depending on the amount of gelatin coated, and the addition of the polymer increased the amount of the hardening. The amount of silver coated on one surface was 1.9 g/m^2, and the silver was coated on both surfaces.

Measurement of Amount of Substance washed away by processing, Measurement of Drying Speed, Measurement of Sensitivity and Dmax, Evaluation of Scratching Resistance, and Evaluation of Residual Color were carried out by the same manner as in Example 1.

The results of these evaluations are shown in Table 4, together with the composition of the samples. As the organic substances to be washed away, polyacrylamide having an average mol cular weight of 8,000 and d xtran having an average molecular weight of 10,000 were used. Drying properties not causing problems at all in the continuous processing with FPM4000 corresponded to a drying speed of 28 to 29 seconds in the present method. It can be seen from the results of Table 4 that if the amount of the organic

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Table 4

Sample No.	Surface Protective Layer (One Surface) Gelatin (g/m^2)	Surface Protective Layer (One Surface) Polyacrylamide $M\bar{w}$ 8000 (g/m^2)	Surface Protective Layer (One Surface) Dextran $M\bar{w}$ 10000 (g/m^2)	Emulsion Layer (One Surface) Gelatin (g/m^2)	Emulsion Layer (One Surface) Polyacrylamide $M\bar{w}$ 8000 (g/m^2)	Amount Washed Away by Processing (%)	Drying Speed (seconds)	Sensitivity	Dmax	Scratching Resistance	Evaluation of Residual Color
4-1 (Comparison)	1.3	-	-	1.81	-	0 - 2	26.5	0	3.42	C	C
4-2 (")	"	-	-	"	-	"	30.6	+0.03	3.85	D	D
4-3 (")	"	-	-	"	0.6	4 - 5	26.2	+0.01	3.60	B	C
4-4 (")	1.1	0.50	-	"	-	6 - 7	26.6	+0.02	3.65	B	C
4-5 (Invention)	"	-	-	"	0.80	10 - 11	25.9	+0.03	3.9	B	B
4-6 (Comparison)	"	-	-	"	"	8 - 9	16.5	-0.01	3.50	B	C
4-7 (Invention)	0.8	0.80	-	"	-	14 - 15	26.0	+0.05	3.95	B	A
4-8 (")	"	"	-	"	-	13 - 14	17.3	+0.04	3.86	B	A
4-9 (")	"	"	-	"	-	10 - 11	14.2	+0.02	3.70	A	D
4-10 (")	"	"	-	"	0.80	12 - 13	18.5	+0.02	3.80	A	A
4-11 (")	"	-	0.80	"	-	15 - 16	23.1	+0.05	3.95	B	A

Table 5

Sample No.	Surface Protective Layer (One Surface) Gelatin (g/m²)	Polyacrylamide ($\bar{Mw}$) 40000 (g/m²)	Polyacrylamide ($\bar{Mw}$) 18000 (g/m²)	Polyacrylamide ($\bar{Mw}$) 7000 (g/m²)	Dextran ($\bar{Mw}$) 40000 (g/m²)	Dextran ($\bar{Mw}$) 10000 (g/m²)	Emulsion Layer Gelatin (g/m²)	Amount Washed Away by Processing (%)	Drying Speed (seconds)	Sensitivity	Dmax	Scratching Resistance	Evaluation of Residual Color
5-1 (Comparison)	1.3	-	-	-	-	-	1.81	0 - 1	25.0	0	3.6	C	C
5-2 (")	0.6	-	-	-	-	-	"	"	22.0	+0.03	3.65	E	B
5-3 (")	1.3	0.8	-	-	-	-	"	4 - 5	24.8	+0.01	3.8	B	C
5-4 (Invention)	1.3	-	0.8	-	-	-	"	12 - 13	25.2	+0.04	3.9	B	B
5-5 (")	"	-	-	0.8	-	-	"	15 - 16	24.7	+0.07	4.05	B	A
5-6 (")	0.6	-	0.7	-	-	-	"	13 - 14	22.3	+0.05	4.0	C	A
5-7 (")	"	-	-	0.7	-	-	"	15 - 16	19.8	+0.09	4.05	C	A
5-8 (")	0.8	-	-	-	0.8	-	"	13 - 14	21.8	+0.08	4.1	C	A
5-9 (")	0.8	-	-	-	-	0.8	"	16 - 17	18.5	+0.12	4.15	C	A

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Method of developing silver halide photographic materials.

A method for processing a silver halide lightsensitive material is disclose comprising a support having thereon at least one silver halide emulsion layer with an automatic developing machine which comprises developing an imagewise exposed silver halide light-sensitive material, wherein an amount of organic substances remaining in at least one of the emulsion layer or other hydrophilic colloid layers comprising a surface protective layer after said processing with said automatic developing machine, is not more than about 90 wt% of the weight of said organic substances prior to said processing.

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